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SIGMA XI QUARTERLY

VOLUME I

DECEMBER, 1913

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EDITORIAL COMMITTEE

James McKeen Cattell
Dayton Clarence Miller

Henry Baldwin Ward
Samuel Wendell Williston

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Let the idea be before you that this is not a simple fraternity but that we are taking the lead in forming an ideal of modern scholarship in which literary elegance and facility while important elements are not the prime factors but in their place intellectual discernment and judgment and powers for using means to ends are of prime importance. And to cultivate this spirit in an institution should be the noblest aim of a chapter. * * * I would be jealous of granting a chapter anywhere that I thought [this spirit] was lacking.

From Address of President Henry S. Williams, October, 1896.

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Address all communications to the Managing Editor, 5223 Madison Ave., Chicago, Ill.

THE ANNUAL CONVENTION

The fifteenth convention of the Society will be held at Atlanta, Georgia, on Tuesday, December 30. It is proposed that the delegates to the convention have luncheon at one o'clock followed by the meeting for the transaction of business. In the evening there will be a dinner for members of the Society and their guests.

By the rules of the Society the convention is held at the time and place of the meeting of the American Association for the Advancement of Science, unless otherwise provided for by the officers of the Society. In view of the distance of Atlanta from the larger scientific centers the question was submitted to the members of the council. Twenty-nine voted to meet at Atlanta, two to hold the meeting elsewhere or not at all, and three were doubtful.

There is every reason to believe that a successful meeting for the transaction of business will be held at Atlanta. Members of the council who have been influential in the development of the Society have expressed their intention to be present, and it may be expected that the chapters will be adequately represented by their delegates. As the scientific programs of the American Association for the Advancement of Science and of the affiliated societies will be less crowded than usual the convention will have time to consider the important questions that will be brought before it.

Precise information concerning both the luncheon and the dinner will be found in the printed program of the American Association given to all persons on registering in Atlanta. A notice will also be posted in the Registration Bureau at the headquarters of the Association.

J. McK. C.

CONDITIONS OF MEMBERSHIP

It is worth while to inquire what characteristics belong to such conditions of membership as are desirable for the standards of the Society. Is it not clear that to be satisfactory conditions for membership should conform to the following standards:

1. They should be clear; that is, so brief and definite that they can be easily comprehended, and cannot be easily confused or misunderstood.
2. They should be simple; so formulated in language and in character that they may be quickly and readily applied with equality in all cases.
3. They should be distinctive; so that they will promptly differentiate between the different classes of membership and between the different individuals who may be presented for consideration.
4. They should be stimulating; so that every member shall be encouraged to undertake further research, and that every non-member may be aroused to do something worthy of membership in the organization, because it commands general approval and accomplishes something useful.

Do the present conditions of membership as set down in the Constitution conform to these characteristics? Personally, I incline to the opinion that they do, although I am often led to think that they have not been carefully examined by those who have been called upon to utilize them when electing members. H. B. W.

A NATIONAL CONCEPTION

I suspect that one fundamental difficulty with which as a society we have to deal, is the probable fact that few people appreciate the necessity of organization and executive work in a society of national scope. I feel certain that until the advent of the *QUARTERLY*, only a few of our members—the older ones—ever realized that a national organization existed. "Sigma Xi" simply stood for a certain proficiency in science, at least to a majority of our members, who were—and are—perfectly content to let the few "run" the affairs of the Chapter. I suspect that the Chapter interest in the general organization cannot be much stronger than the average interest of each individual member in his own chapter. R.

THE PROPOSED DUAL MEMBERSHIP

BY E. L. NICHOLS

The proposal to have two classes of members in Sigma Xi has been before the Society for several years and is now likely to be decided in the near future.

The diversity of practice is at present very great. Certain chapters have gone so far as to limit their activities entirely to the graduate school and the teaching force while others, adhering to the ideals of the founders, find the greatest usefulness of the Society in affording recognition of the promise of future achievement on the part of members of graduating classes.

Obviously the bestowal of the key in the case of seniors who have shown unusual aptitude in their undergraduate work means something quite different from the conferring of the same honor upon young investigators who by success in research have demonstrated their right to be enrolled in the lists of science.

The proportion of those who, by their subsequent career, are to justify the judgment of those who elected them to membership will undoubtedly be greater in the latter case but the proportion, even then, of those destined to a permanent place among men of science of recognized achievement, will inevitably be so small that the advantages, on that account, of postponing election until graduate work is nearing completion do not appeal to me as of great importance.

It is clearly desirable, however, to distinguish between those elected to Sigma Xi on the basis of original work of recognized value and the usual undergraduate elected as showing promise of scientific attainment. This becomes possible through the plan of associate and full membership and it would seem to do away with the danger, ever increasing under our present system, of drifting away from the original purpose for which the society was founded.

It has been felt by some that the undergraduate honor would suffer by the change, but I am convinced this would not be the case. On the contrary, it may be confidently expected that election as a senior to associate membership in a society of investigators, the qualification for full membership in which consists in the actual performance of original work and proven ability in research, will prove a powerful stimulus to many to go on to more advanced study. The

undergraduate election should be interpreted as an expression on the part of those competent to judge of the possession of qualities which would warrant the student in devoting himself to scientific investigation and would be a deciding factor in many doubtful cases.

The tendency to insist upon more and more rigorous interpretation of the qualifications for membership is so admirable a feature of our evolution that it is doubtless destined to prevail until, if our present system continues, Sigma Xi becomes a graduate society pure and simple. It should be a graduate society of very high standards, but there is no reason why it should not likewise reach down. The proposed change will make it possible to reach down and to extend upwards at the same time.

Associate membership will indeed make it possible to extend greatly the usefulness and influence of the society by enabling us to recognize and encourage students of exceptional ability and promise at an earlier stage than we now feel justified in doing. It should also make it possible to extend the benefits of the society to many institutions where there is opportunity for usefulness in the undergraduate field but where graduate work of a serious character is as yet comparatively undeveloped.

At present the society hesitates to grant a chapter, with the feeling, doubtless in many cases fully justified, that such chapters would not for many years be on a par with those in institutions where large and increasing attention is being given to advanced work of the highest character. Under the proposed system this difficulty disappears and chapters which may be founded today with the understanding that their work will be chiefly with undergraduates may be freely established. Such chapters may be expected to develop, with the growth of the institutions where they are founded, into chapters having the double function which for a long time to come will continue to be demanded and exercised even in the largest and most advanced of our universities.

Against dual membership it may be urged:

- (1) That it is undemocratic.
- (2) That it is impracticable.
- (3) That it is uncalled for.

The plea for complete democracy appeals strongly to many minds and it would deserve very serious consideration if the proposed division were an artificial or arbitrary one. It must be remembered, however, that with the growth of the society a new function has been gradually and almost unconsciously developed, which is

quite distinct from that which was definitely in mind in the earlier days.

It is this new view, according to which Sigma Xi is a union of the productive workers in all of the sciences, rather than a mere senior honorary society which in certain chapters has already led to the complete abandonment of the undergraduate field.

The two functions are not really incompatible but demand for the best simultaneous working some such scheme as the proposed dual membership. With it the society will have something to offer the ambitious undergraduate far more attractive and important than a senior honor of the usual type.

When we recognize the dual functions of the society the dual membership seems natural and expedient and it may be justified without fear of encouraging even a tendency towards aristocracy or caste.

Far from being impracticable I am convinced that the new scheme will vastly simplify the present situation which leads everywhere to almost irreconcilable differences of opinion as to the interpretation of the qualifications for membership. Under the new plan instead of struggling to adapt the same definition to widely different cases we shall have two distinct standards, each easily applied. I deem the change, therefore, both workable and necessary.

FOR WHAT DOES SIGMA XI STAND?

BY OLIN H. LANDRETH

The forthcoming convention of Sigma Xi and the opportunities it offers for full consideration of desirable amendments to the constitution, make it appropriate that in the framing of such amendments, the essential ideals for which the Society stands should be clearly recognized and correctly interpreted. In determining just what are our ideals, the question is not simply:—How is the present constitution to be construed and interpreted? nor even:—What did the original framers and founders contemplate as the character of the society? To insist that these questions form the limits of our consideration of proposed amendments, is to insist that the constitution is not subject to amendment but simply to interpretation; or in other words, that the *creation* is superior to the *creator*. Like all constitutions of this character, ours is an instrument for the benefit of the Society and of the interests which the society fosters, and as such is subject to adjustment or modification of either moderate or radical extent, as the Society may determine.

If by reason of the growth and advancement in modern scientific thought and tendencies, the ideals and purposes which the founders of the Society adopted are no longer adequate or appropriate, it is clearly, not only our privilege but our duty to adjust the constitution, which is our temporary guide, so that the objects of the Society as therein expressed, shall be in harmony with the consensus of the best thought and the highest ideals of the membership. In other words, the constitution and even the Society itself are not *ends* but simply *means* or instruments which the scientific workers comprising the organization of Sigma Xi are employing to accomplish a definite and laudable ultimate purpose, viz. the advancement of science as a benefit to mankind. Similarly, it is quite evident that if indefinite, or ambiguous, or doubtful terms are found in the constitution, they should be construed and interpreted, whether for working purposes or for purposes of substitution by amendment, in full harmony with the same supreme criterion, viz. the consensus of the best thought and the highest ideals of the membership.

What is the best thought, and what are those ideals, as to aims and objects of the Society? Are those aims and objects accurately represented by the specific words of the constitution? viz. "to encourage "original investigation in science, pure and applied, . . ." When we consider the numerous functions and activities which must be concurrently employed in order that true science shall be effectively advanced, it is difficult to escape the feeling, that the statement of the object of the Society, as above quoted from the constitution, is somewhat narrow or partial, or at least is in danger from its wording of being narrowly interpreted and construed. This danger is not imaginary, for while some chapters have clearly given a broad construction to the terms of the constitution, others have shown a decided tendency to interpret the terms literally. Moreover, in the discussion of proposed amendments to the constitution, particularly with respect to the qualifications of candidates for membership, there is a very evident tendency in certain quarters to impress the narrow construction on the Society by more definite and inelastic wording in defining membership qualifications.

Can there be a doubt in any clear, broad mind, that the true ultimate purpose of the Society should be to foster and encourage that type of training and development which shall best aid in advancing science as a powerful agency for human uplift and progress? Gauged by this or an equally broad standard, the formal wording of the object of the Society as expressed in the constitution, is clearly lacking in breadth and fullness.

"Original investigation in science" is surely an exceedingly important factor in the general advancement of science, but by no means the only factor. In point of essentiality the other factors are, in the aggregate, even more important. The educational development of a strong mentality, of the power of independent thought, of accurate and clear-cut perception and logical reasoning, of critical analysis, of a sane, creative imagination, of a well-balanced judgment, the proper interpretation and correlation of the results of investigation, the formulation and verification of general principles from isolated data, the aggressive promulgation and dissemination of established scientific principles, the solution of the numerous difficult problems of application and utilization of scientific principles, and many other activities, are all essential factors in the advancement of science and in rendering available and usable the results of original investigation and research.

It falls to the lot of but few workers in science to have the ability and the opportunity to become effective in all these activities and in original research as well. Shall only those who are effective in the *latter* of these activities be entitled to the recognition of the Society? Such a policy would greatly restrict and limit the field of usefulness and opportunity of the Society and would thereby inevitably bring about the reactionary effect of dwarfing the otherwise powerful influence of the organization.

A broad and far-sighted perception and recognition of the ideal objects and opportunities of the Society of Sigma Xi in future interpretations and amendments of its constitution, would result in an expansion of the field of usefulness of the society by providing merited recognition and encouragement for several essential activities which are at present neglected and undeveloped, and would thereby augment the power and influence of the Society for which we have such affection and respect.

Union College Engineering School

THE SOCIETY OF THE SIGMA XI AND THE PROGRESS OF RESEARCH

By H. T. EDDY

Dr. George E. Hall, writing in *SCIENCE* of November 14, has a leading paper on National Academics and the Progress of Research in which he traces in a striking manner how greatly the progress of research has been fostered by the encouragement which scientific workers have received from such organizations ever since the dawn of exact knowledge in its various branches. He dwells at length on the career of the Royal Society in England which has assumed a fundamentally different attitude toward beginners in scientific work from the national academies on the continent. On the continent it may be said in general that a man must have attained eminence in order to be recognized at all by an academy. But in England, "the Royal Society has extended the distinction and privileges of its fellowship to a much larger number of investigators than have been similarly honored by the continental academies. Every investigator in science will understand and appreciate the benefit which such recognition entails. Most of all the obscure individual worker, unnoticed and unsupported by the universities, but wholly devoted to the pursuit of science, must benefit by such moral support. On the continent investigators of this type, not connected with a university, and receiving no aid from neighboring university men, could not be recognized by election to the academies because of their limited membership or their fixed traditions. In England such men would have been received into the Royal Society, which would have been glad to publish their papers as fellows and aid them in other ways." Many of England's most brilliant discoverers have received early assistance in the way of recognition, and publication of their papers, as well as a loan of scientific instruments, a procedure that has had a most vital connection with the progress of research in many important fields of science. Among those so encouraged and assisted we may mention, Sir Isaac Newton, who acknowledged this indebtedness most feelingly; Davy, Faraday, Darwin, Flamsteed, Tyndall, not to mention Sir Thomas Young, the author of the wave theory of light and the discoverer of the first clue to the reading of the Egyptian hieroglyphics, and many others. It is apparent what an essential, not to say principal factor

the Royal Society has been in the development of scientific progress in England, than which no country has a more enviable record.

Now the rôle of the Royal Society and its function as foster-mother of science in England has been made possible partly by the limited territorial extent of that country, where personal contact between workers is somewhat easy. Distances are so much greater in the United States as to render it impossible for our National Academy to have the same relation to the host of scientific workers in this country that the Royal Society has had to those in England. Our National Academy is compelled to adopt more nearly the policy of the continental academies.

It seems to me that just here is the important field of the Society of the Sigma Xi. It can and should become more and more the general agency for recognizing and fostering research in this country. Having an organization as wide as the country, and a ubiquity such that its thousands of eyes can see everything in all corners of the land, its opportunity is to do on a grand scale what no society confined to a single locality can do, namely, to become the one agency to extend a helping hand to the young investigator, until it shall become recognized everywhere as the one society offering zealous companionship and ready aid to all who have in them the inextinguishable spark that lights the seeker after new truths. The Franklin Institute by its prizes and magazine publicity has striven to do some of this work but necessarily on a limited scale. It is possible for our Society to do this on a nation wide scale and effectively; this I hope may ultimately be not merely an aim but an accomplished fact.

IMPORTANT ANNOUNCEMENT

Membership statistics for 1913 will be published in the next issue of the *QUARTERLY*. Will Chapter Secretaries kindly refer to the table of statistics for 1912, printed on page 27 of the current volume and to the discussion of this table found on pages 25 and 26. New information should be furnished in proper form for incorporation in this table and any errors in the data printed last year should be corrected now. An early reply will lighten the labors of the secretary and the thanks of all will be due those who contribute to perfecting the records of the Society.

HENRY B. WARD.

CONSTITUTIONAL AMENDMENTS

AMENDMENTS PROPOSED BY THE COMMITTEE TO DEFINE THE CONDITIONS FOR ASSOCIATE AND ACTIVE MEMBERSHIP IN THE SOCIETY OF THE SIGMA XI

At the Cleveland convention a committee was appointed charged with the formulation of amendments to the constitution of the Sigma Xi defining the qualifications for associate and active membership. Unfortunately, the third member, representing the engineering profession, was unable to serve on the committee, because of the stress of other duties. The two other members, Professor Nichols and the undersigned, were absent in Europe continuously from the latter part of February till near the first of October, and it was found impossible to submit the proposed amendments for the action of the council and the chapters, as directed by the convention, in time for legal action by the next convention.

The subject, however, is one of such grave importance to the Society that it is better there should be a thorough discussion before its submission to the convention for final approval or rejection. The proposed amendments, as formulated by the committee, and as recommended by others, are therefore given here in the hope that they will receive at the Atlanta convention the earnest attention of the delegates. If approved they will have all the force of actual amendments to the constitution, and may be formally ratified later.

The committee has been greatly indebted to various members of the Society for helpful suggestions, and especially to Professors Edmunds and Huber of the Michigan chapter, and Dean Orton of the Ohio chapter. As the suggestions by Dean Orton were received too late for submission to Professor Nichols they have been inserted separately. Dean Orton called a committee, composed of Professors Bownocker, Vivian, Dye, Morrow, Prosser, and Barrows, for the discussion of the amendments submitted to him, and the suggestions they offer the writer believes to be distinct improvements. The changes from the present form proposed by the committee are given in italics.

ARTICLE III

SECTION 1. The Society shall consist of *associate*, active, alumni, and honorary members.

SECTION 2. (a) *The associate membership of the chapter at any institution shall be composed of such students as may be elected by the chapter or admitted from other chapters; associate members shall have all the privileges of active members when present at any meeting, except the right of suffrage.* The active membership of the chapter at any institution shall be composed of such resident professors, instructors, and students as are members of the Society. The alumni members of the chapter shall consist of former active members no longer connected with the institution, and such graduates as may be admitted to membership under the provision of Section 5; they shall have all the privileges of active members when present at any meeting, except that they shall not vote at the election of new members. *Associate or active members of any chapter who may become connected with another institution at which there is a chapter shall be entitled to enrollment as associate or active members in the latter on presenting satisfactory credentials.*

(b) Membership of alumni chapters shall be composed of alumni members of collegiate chapters, and such graduates of other institutions of learning at which there are no chapters of the Society, as may be elected to membership in the Society by Alumni chapters.

SECTION 3. Honorary members shall be scientific workers who have achieved eminence in some branch of pure or applied science. They shall be entitled to all the benefits of the Society, including the right to attend and take part in conventions and meetings, but not the right of suffrage.

Section 4. *The following and no others are eligible to associate membership in a chapter at any institution: any graduate student or any undergraduate student of the third or fourth year who has given promise of marked ability or shown marked excellence in those departments of science which it is the object of the society to promote.*

The following and no others are eligible to active membership in a chapter at any institution: (a) any professor or instructor of the institution who has shown noteworthy achievement as an original investigator in some branch of pure or applied science: (b) as a non-resident member, any professor, instructor or investigator connected with a neighboring educational, scientific or professional institution not having a chapter who otherwise would be eligible for active membership; (c) any resident graduate or undergraduate, who has given evidence of an aptitude for scientific investigation. *Such evidence shall consist of either the publication of original investigations of merit; or the actual performance of meritorious research work, when vouched for by two or more active members of the society. In professional or technical institutions marked evidence of originality in constructive work or in the solution of intricate problems, when associated with general excellence in scientific studies shall be construed as*

fulfilling the requirements of this section, when vouched for by two or more active members.

Section 5. Any graduate of the institution, or of other institutions at which there is no chapter of the society, is eligible to membership on the same conditions as prescribed for professors and instructors in (a) of section 4.

S. W. WILLISTON,
E. L. NICHOLS,
Committee.

AMENDMENTS PROPOSED BY DEAN ORTON AND THE OHIO COMMITTEE

Section 4 (second sentence) To add: Such promise shall be regarded as sufficiently met if one or more active members make written statements vouching for the ability of the student to do independent thinking, and the scholastic record of the student is of high quality. A record of high quality alone, without testimony of the power of independent thought, shall not be considered as sufficient weight. Such promise may also be regarded as sufficiently met if three or more active members in unrelated departments make written statements vouching for the student's originality, intellectual power, and success in the problems thus far attacked, even if the scholastic record of the student is not a high one.

Section 4 (last sentence.) To add: In case of students pursuing professional or technical courses, evidence of originality in the solution of intricate problems, and power to do constructive work with experimental data, vouched for by two or more active members of the chapter, should be construed as fulfilling the requirements of active membership.

REPORT TO THE ILLINOIS CHAPTER ON THE MINNESOTA AMENDMENTS

Your committee appointed to consider the amendments to the Constitution of the General Society offered by the University of Minnesota* begs leave to report as follows:

We have attempted to consider the general tenor rather than the precise phraseology of these items in order that our delegates may be able to support a general policy rather than merely be tied up to a form of wording.

The first proposed amendment reads as follows:

Article II. Section 3.

"The chairman shall submit copies of the petition and all available information to the members of the council for consideration and consul-

*See QUARTERLY, No. 1, p. 11.

tation with the members of their chapters. It shall be the duty of each councilor to advise the chairman by letter as soon as practicable as to his attitude and that of his chapter regarding the petition. The chairman shall submit the results of this consultation to each councilor in detail for his information and further consideration. After full opportunity for further inquiry, the chairman shall submit the question of granting the petition to letter ballot of the councilors whose vote shall be final. Each chapter may make such rules as it may determine upon regarding its instructions to its councilor in the matter of his voting upon petitions for charters."

"When the chairman has received the written consent of three fourths of the members of council to the granting of the petition, he shall notify the president that the petition has been granted."

The first amendment is a radical change from the present policy of the Society in granting a new chapter. As the matter now stands a petition for a new chapter is discussed in the Council and the advisability of presenting the petition to the general Society is passed upon before the matter is made public in any way. If the Council is agreed that it is desirable to grant the charter, the subject is then laid before the chapters openly and on the vote of the chapters depends the action with regard to the establishment of the new chapter.

In the new scheme it is the duty of members of the Council to provide for an immediate discussion of the matter in their respective chapters. The result of this discussion will then be transmitted to the Council and the final vote of the councilors determines the question.

Is it not wise that no petition should pass beyond the knowledge of the Council until it appears that the best interests of the Society will be served by admitting the proposed chapter? After this conclusion has been reached, it is evidently legitimate for the members of the Council to throw the responsibility openly upon the chapters and let them discuss as fully as desired the ratification of the Council action; but, before the question has reached the point where the Council is clear in any case, open discussion is adverse to the best interests of the Society and of the applicant alike. In many of our faculties are to be found strong men who are graduates of weak institutions. In any public discussion involving their Alma Mater or an institution closely affiliated with it they are bound to be influenced to take a favorable attitude. On the other hand, a careful personal discussion of the general principles involved has often resulted in the past in the expression of doubt as to the wisdom of the proposed move.

Your committee finds that it cannot recommend the new scheme for the following reasons:

First, the publicity achieved would be unfortunate both for the applicant and for the Society. It would tend to align members in accordance with personal affiliations and would prevent the discussion of the question from the standpoint of general policy. It seems to us an admirable provision in our present constitution that the matter should be carefully considered in executive session of the Council before it is in any way brought to the attention of the general Society, and we are inclined to feel that the investigation of the Council should be so thorough and its recommendations so clear as to command the prompt and cordial support of the chapters and that no petition should be brought into public notice until its ultimate acceptance is practically assured.

Second, we are confident that the method proposed will increase the amount of executive work and thus add to the burden of conducting the Society. The proposed plan will also make the business of granting a charter even slower than the present dilatory plan; it is therefore objectionable because of taking more time.

Third, we are inclined to think that the method proposed will ultimately make a councilor only the mouthpiece of his chapter and limit his power of exercising individual judgment. We cannot believe that this is a desirable tendency.

Many are of the opinion that the instructed delegate cannot serve the best interests of the Society as a whole. At various conventions certain delegates have stated publicly in explanation of a vote that after listening to the discussion they were personally convinced of the wisdom of the plan proposed, but that they had been positively instructed by their chapters to oppose the measure and although they felt that the chapters might modify their instructions if the matter had been laid before them as it was now presented, yet they had no right to depart from the instructions given.

The second proposed amendment reads thus:

"Section 4. Councilors not reporting their votes within a period of six (6) months from the time of any question is submitted to them, shall be again requested to vote, and on failure to do so within ten days, shall be regarded as having voted in the affirmative."

"Section 5. A charter for the establishment of a new chapter shall be issued as soon as the president has received notification of the consent of the requisite number of councilors."

Note that the proposed method plans to register all votes which may be delayed as affirmative votes on the question at issue. Your

committee believes that members or chapters who may be in doubt regarding the wisdom of a particular movement should not be compelled *nolens volens* to vote in the affirmative because they hesitate to register a positive vote in the negative. On the question of granting a charter for a new chapter there are three clearly differentiated positions; first, approval; second, rejection; and third, reasonable doubt as to the wisdom of the course at the present moment. In our opinion either members or chapters should be permitted to express the third position by withholding a positive vote on the question or by registering a vote in favor of postponement for the present time. To register the latter would require a change in our constitution unless this construction be placed upon votes that are not formally and promptly recorded on one side or the other of the question.

The next proposed amendment reads as follows:

Article VIII. Section 1.

"A regular convention of the Society consisting of one delegate from each chapter shall be held once each two years during the summer vacation at a time and place fixed upon the council."

The amendment to Article VIII regarding conventions of the Society aims to provide for holding a convention at some time distinct from other meetings so as to give opportunity for devoting undivided attention to the business of the organization. With this the committee is in full approval. It would suggest the omission from the form published of the words "during the summer vacation." The widest latitude should be given to the Council to fix the time and place, making such changes from year to year as proves most desirable. To include the words indicated above is equivalent to limiting rather narrowly the powers of the Council in this matter.

The article on conventions does away with the privilege of holding special conventions. While none have ever yet been held, the privilege may be an important one for an emergency and should be retained.

CHAPTER REPORTS

THE CHICAGO CHAPTER

The following lectures have been given before the Chicago Chapter during the past academic year:

December 11, 1912. Some Recent Additions to Our Knowledge of the Nature of the Atom.

By Prof. R. R. Millikan, University of Chicago.

January 7, 1913. The Discovery of Wild Wheat and Its Bearing on the Development of a Drought Resistant Race.

By Mr. Aaron Aaronsohn, Director of the Agricultural Experiment Station at Haifa, Palestine.

March 6, 1913. Evidences of Recent Progress in Engineering.

By Dean W. F. M. Goss, College of Engineering, University of Illinois.

May 22, 1913. Measurements of the Earth as a Whole.

By Prof. John F. Hayford, Director of the College of Engineering, Northwestern University.

Members elected to the Chicago Chapter during 1912-1913. Autumn Quarter (1912) A; Winter (1913) W; Spring (1913) S. The titles following the names are those of the research which was part of the basis for election. These theses are not necessarily completed, though in some instances they are, but in all cases the work is sufficiently well advanced to assure successful completion. They all represent work offered for higher degrees except in the case of faculty members. The degree sought except in one case is the Ph. D.; the one exception is a Master. In each case the department in which the work is being carried out is stated:

William Lewis Eikenberry, Botany, W. Elected from Faculty. The Forests of Ogle County Illinois.

Except for this one Faculty Member all of the new members were graduate students at the time of election.

Hannah Aase, Botany, W. Anatomy of the Sporophylls of *Araucaria* and *Agathis*.

Aaron Arkin, Pathology, W. Influences of Chemical Substances Upon Immune Reactions With Special Reference to Oxydation.

Frank Kaiser Bartlett, Pathology, W. Acromegaly With Polyglandular Syndrome.

- Will Lee Brown, Zoology, A. Studies of Certain Changes in the Mammalian Ovary.
- George Smith Bryan, Botany, A. Life History of Sphagnum.
- Clyde Coleman, Chemistry, W. Constitution of Two Penta-acetyl-d-glucoses.
- Hermann Deutsch, Botany, W. Study of Targionia Hypophyllis.
- Ellsworth Eugene Faris, Psychology, W. A study in the Psychology of Punishment, Genetic and Racial.
- Arthur Earle Fath, Geology, W. Studies in Connection with the Geological Survey.
- Curvin Henry Ginrich, Astronomy, W. Determination of Photographic Magnitudes of Comparison Stars in Certain of the Hagen Fields.
- William Herman Haas, Geology and Geography, W. Geology and Geography of the Mesa Verde Region.
- Frank Alfred Herald, Geology, W. The Williston Lignite Fields Williams Co. N. Dakota.
- Oscar Fred Hedenburg, Chemistry, W. Lactones of mannonic and gluconic acids.
- Libbie Henrietta Hyman, Zoology, A. Regulation and Pure Line Studies in Naids.
- Edward Safford Jones, Psychology, W. Effect of Bodily Attitudes on Mental Processes.
- William Henry Kuh, Chemistry, A. Dissociation of Methyl and Ethyl Imidobenzoate Hydrochlorides in Aqueous Solution.
- Edwin Daniel Leman, Chemistry, A. Chemical Properties and Relative Activities of Actinium and its Products.
- John Wood Mac Arthur, Zoology, W. Investigation of Certain Problems in Pure Line Cultures of Chalcid.
- Martha MacDonald, Mathematics, W. On Forms of Nodal Curves of Vibrating Membranes.
- Arthur Wesley Martin, Chemistry, S. Studies of solutions in Anhydrous Formic Acid.
- Ralph Garfield Mills, Bacteriology, A. A Comparative Study of the Bacteriology of the Feces of Persons on a Continuously Low Protein Diet.
- Wilson Lee Miser, Mathematics and Astronomy, W. Linear Homogeneous Equations With Double Periodic Meromorphic Coefficients.
- Adelbert M. Moody, Pathology, S. Work on Lange's Colloidal Gold Reaction for Cerebro Spinal Syphilis.
- Lulu Newlon, Botany, A. Some Problems in Plant Distributions.

- Harold William Nichols, Physics, A. Production of the Line Spectrum of Nitrogen.
- Roberts Owen, Psychology, A. Criteria of Recognition.
- Harry Morrill Paine, Chemistry, W. The Effect of Salts on the Solubility of extremely soluble salts.
- Emerson Mears Parks, Geology, W. Studies in Connection with the Geological Survey.
- Benjamin Floyd Pittinger, Psychology, W. Distribution of Effort in Learning.
- Almon Ernest Parkins, Geography, S. A Comparison of Trans-Appalachian Railways.
- Dean Humboldt Rose, Botany, S. Relation of Fungi to Discoloration and Germination of Alfalfa Seed.
- Joseph James Runner, Geology, W. Special Studies in Structural Geology.
- Ida Mary Schottenfels, Mathematics, W. Papers in Structural Geology.
- Hope Sherman, Botany and Pathology, A. The Behavior of the Tubercle Bacillus Toward Fat Dyes.
- Eva Ormento Schley, Botany, A. Physical and Chemical Changes Following Geotropic Stimulus.
- Eugene Austin Stephenson, Geology, W. Alteration of Feldspars.
- Morris Miller Wells, Zoology, A. Experimental Studies on the Reaction and Resistance of Fishes to Gases in Solution in Water.
- Stanley Davis Wilson, Chemistry, W. Studies on the Hydrolysis of Esters.

On May 22, 1913, the Chapter elected its officers for the years 1913-1915, and the names are given in the list on page 112. The Chapter also chose an Electoral Board: J. M. Coulter, H. N. McCoy, P. Kyes, H. H. Newman, G. A. Bliss.

H. I. SCHLESINGER,
Recording Secretary.

THE MINNESOTA CHAPTER

During the year 1912-13 the chapter held three scientific meetings, at which papers were read as follows: November 25, 1912, The Enrichment of Sulphide Ores, by W. H. Emmons, head of the department of geology; The Scattering of Cathode Rays, by L. W. McKeehan of the department of physics, January 20, 1913, Development of Lymphocytes in Lymph Nodes and Spleen, by Hal Dow-

ney of the department of animal biology; Good and Bad Clays, by F. F. Grout of the department of geology. April 24, 1913, open meeting lecture by Professor C. J. Keyser of Columbia University, Concerning the Figure and the Dimensions of the Universe of Space.

The regular annual meeting of the chapter was held May 22, 1913, and the following were elected members of the Sigma Xi; the subject of the most important research follows in each case:

From the faculty:

W. P. Larson, Instructor in Pathology, Infectious Abortion in Cattle.

E. P. Burch, Lecturer on Electric Railway Engineering, Electric Traction for Railway Trains.

Graduate students (including two fifth-year students in the School of Chemistry, holding the degree of B.S., but not technically graduate students):

Grover Conzet, A Qualitative and Quantitative Study of Seed Production and Reproduction of the Norway Pine, *Pinus resinosa*.

Elmer A. Daniels, The Action of Anhydrous Aluminum Chloride on the Ethers.

Junius D. Edwards, Quarternary Ammonia Compounds.

Milton M. Goldstein, The Action of Chloroform on Potassium Phenolate.

H. V. Harlan, Morphological and Physiological Distinctions in Our Cultivated Barleys.

Harry D. Kitson, Three Psycho-Physical Tests for Measuring the Effect of Ventilation on the Work of School Children.

Paul E. Klopsteg, The Measurement of Magnetic Fields by Means of a Damped Cell.

Wolf Kritchevsky, *Récherches sur la Thioxenine*, and investigations on catalysis.

Adolph Ringoenk, The Origin and Structure of the Mast Cells of the Adult Rabbit.

Charlotte Waugh, Minnesota Galls.

Roger Wilson, Reducation of Mercuric Chloride by Phosphorus Acid and the Law of Mass Action.

FRED K. BUTTERS,
Corresponding Secretary.

THE WORCESTER CHAPTER

During the year 1912-1913 four meetings were held. The speakers at the first three meetings were chapter members, and at

the annual meeting in June an address was given by Mr. L. A. Hawkins, of the Research Laboratory of the General Electric Company on The Development of the Tungsten Lamp.

The following were elected to membership on April 23, 1913: George Nelson Bailey, A. B., graduate student.

Squirrel-cage Induction Generator. Comparison of the Relative Adaptability of the Synchronous Alternator and an A-synchronous Induction Generator to Hydro-Electric Generation of Electric Power.

Charles Perry Ball, Jr., undergraduate.

Mechanical Engineering.

Clarence Arizona Brock, undergraduate.

Mechanical Engineering.

Peter William Brouwers, undergraduate.

Civil Engineering.

Albert Lewis Brown, undergraduate.

Chemistry.

Edmund Karl Brown, undergraduate.

Mechanical Engineering.

John Nichols Donovan, undergraduate.

Civil Engineering.

George Cooley Graham, undergraduate.

Electrical Engineering.

George Albert Hill, undergraduate.

Chemistry.

Winthrop Marsden Jones, undergraduate.

Mechanical Engineering.

Harry Bernard Lindsay, undergraduate.

Electrical Engineering.

Albert Joseph Lorion, undergraduate.

Civil Engineering.

Cleon Edgar Phelps, undergraduate.

Mechanical Engineering.

Donald May Russell, undergraduate.

Electrical Engineering.

Hugo Fred Schmidt, undergraduate.

Chemistry.

Millard Cole Spencer, undergraduate.

Electrical Engineering.

At the annual meeting, June 10, 1913, the officers for 1913-1914 were elected.

HOWARD C. IVES, *Corresponding Secretary.*

THE IOWA CHAPTER

The activities of the Iowa Chapter may be generally classified under two heads: The closed meetings, which are devoted to business and to informal presentation and discussion of investigations being carried on by the members, and the open meetings, when some notable public address is given under the auspices of the Society. The closed meetings consist of four regular soirées and other especially called business meetings. During the last year only reports of original work were accepted. Each of these was limited to 12 minutes for presentation. The discussion, however, was unlimited.

The following is a list of the subjects and their authors for the past year:

Geology of Lucas County, as studied in railroad cuts, for the Pleistocene period, by G. F. Kay.

A demonstration of a new adaptation of the Rayleigh disc for measuring sound intensity, by G. W. Stewart.

Histogenesis of the cranial sympathetic ganglia, by A. Kuntz.

The explanation of the heart positions during embryo development, by H. J. Prentiss.

The flora of two limited prairie tracts; one natural and one artificial, by B. Shimek.

Dicliny in *Iva xanthifolia*, C. H. Farr.

The Devonian Age in Iowa as revealed by a study of the geology of Floyd county, by A. O. Thomas.

New studies on the pollination of *Vallisneria spiralis*, by R. B. Wylie.

The development of the cockle burr, by C. H. Farr.

The muscular control of the lower jaw, by H. J. Prentiss.

The elastic properties of copper and iron wires, by H. L. Dodge.

The interaction of the peptonizing agents found in the intestinal tract, by E. W. Rockwood.

The action of mercury vapor on selenium, by F. C. Brown.

A study of the vibration galvanometer, by C. W. Hazelett.

A study of the human embryo, by H. J. Prentiss and J. J. Lambert.

Lamp spacing and power in relation to efficient sign lighting, by J. H. Edwards.

Evaporation in relation to plant life, by L. A. Giddings.

The genuineness of high photo-electric potentials, by F. R. York.

The open meetings last year were about as they have been for years: The presidential address by the retiring president of the Chapter and a special formal address by some noted scholar invited from outside the Chapter. In October, 1912, the presidential address was given by Dean W. G. Raymond on Three Problems of the Municipal Engineer in a Large City. The address for 1913 was given by Dean C. E. Seashore on The Measurement of Individual Mental Traits, with special reference to Musical Capabilities. The latter represented a popular resumé of the investigations by Professor Seashore and his co-workers.

The annual lecture and the initiation of new members is the formal event of the year. A six o'clock dinner is followed by the initiation of new members and later by the public lecture of the evening.

The annual lecturer is one who is generally recognized to be a leader in some line of scholarship, and who has achieved such success that he can put his work before the public in simple language. Last year the public lecture was given by Professor Keyser of Columbia University on The Figure and the Dimensions of the Universe of Space.

The elections during the year include the following persons:
Fred C. Bruene, graduate student.

The Role of Wave Phase in the Intensity Theory of the Localization of Sound.

Morris M. Leighton, graduate student.

The Pleistocene History of the Iowa River.

C. W. Hazelett, graduate student.

The Study of the Vibration Galvanometer, and Its Application to the Measurement of Currents in the Telephone Receiver.

Stuart St. Clair, graduate student.

Ore Deposits Produced by Magmatic Segregation.

Katherine L. Stewart, graduate student.

The Asters and Their Relatives.

F. R. York, graduate student.

The Genuineness of the High Photo-Elective Potentials.

M. F. Clements, C.E., '99, alumni member.

Designed Duluth Ore-Locks.

James E. Gow, B.Ph., '01, alumni member.

Professor of Botany, Coe College. Papers on Botany of Adair Co., Iowa. Morphology and Embryology of Aroids.

Maro Johnson, C.E., '98, alumni member.

Engineer of bridges and buildings of the Illinois Central R. R.
and the Yazoo and Mississippi R. R.

Howard N. North, C.E., '95, alumni member.

Assistant to Chief Engineer of the Oregon Short Line.

The following new members were initiated April 30, 1913,
from the Senior class:

| | |
|----------------------------------|---------------------------------|
| Abba E. Baum, Geology | Asle H. Hanson, Engineering |
| Benjamin Boer, Engineering | George J. Kellar, Engineering |
| Alice E. Brooks, Geology | Florence E. Meadows, Botany |
| Walter H. Cabin, Engineering | Lydia I. Osher, Mathematics |
| John H. Edwards, Engineering | R. H. Lott, Medicine |
| Charles W. Gallaher, Mathematics | Charles I. Preston, Engineering |
| W. J. Garretson, Medicine | Minnie E. Stutz, Mathematics |
| Elvin E. Gray, Physics | |

F. C. BROWN,
Recording Secretary.

THE YALE CHAPTER

The activities of the Yale Chapter are confined chiefly to the giving of elections and to the holding of a series of meetings throughout the year. Elections are given to members of the faculty and graduate students on the basis of the excellence of original work done or in progress. Undergraduates in the Forestry School, Medical School, Sheffield Scientific School and Yale College are given elections on the basis of their promise of success in scientific lines.

The following elections were given during the year 1912-1913. After the names of those elected from the faculty and graduate students is given the list of publications or investigations. From the Forestry and Medical schools those elected were chosen for excellence and promise in the work of the regular courses. After the names of those elected from the Scientific School and Yale College is given the subject in which their major work has been done.

FROM FACULTY AND GRADUATE STUDENTS:

Walter A. Bell, B. S. Queens Coll., Kingston, Ont.

Joggins' Carboniferous Section of Nova Scotia. Sum. Rep.
Geol. Survey, Canada, 1912.

Robert Bengis, Ph.B., Yale, 1910.

Pyrrole Compounds from Imido Acids. Jour. Am. Chem.
Soc., vol. 32.

Synthesis of the Hydantoin of 3-Aminotyrosine. Jour. Am.
Chem. Soc., vol. 34.

Synthesis of 3-Bromotyrosine. Jour. Am. Chem. Soc., vol. 34.
Lewis H. Chernoff, Ph.B., Yale, 1911.

Benzoylphenylacetamide. Jour. Am. Chem. Soc., vol. 32.

The Action of Alcoholates and Amines on Benzoylisocyan-
chloride. Jour. Am. Chem. Soc., vol. 34.

Synthesis of 5-Thiohydantoin. Jour. Am. Chem. Soc., vol. 34.

Ernest Woodward Dean, B. A. Clark University 1908. M. A. Yale
1912.

On the Hydrolysis of Esters of Substituted Aliphatic Acids.
Am. Jour. Sci., Sept. 1912, with W. A. Drushel.

David Upton Hill, B. A., Univ. New Brunswick '08, M. A. Yale
1911.

Article in press on The Purification of the Barium Sulphate
Precipitated in Analysis.

Arthur William Lauer, Ph.B. Univ. of Iowa 1904.

George Augustus Linhart, B. S. Univ. of Penn. '09, M. A. Yale '11.

The Hydrolysis of Metallic Alkyl Sulphates, with W. A.
Drushel. Am. Jour. Sci., July, 1911.

On the Hydrolysis of Metallic Alkyl Sulphates. Am. Jour.
Sci., Sept., 1912.

FROM THE FORESTRY SCHOOL

Clarence Russell Anderson, B. S., Dickinson Coll., '08.

Benjamin Kimball Ayers, B. S. Dartmouth, '11.

FROM THE MEDICAL SCHOOL

Delos Judson Bristol, Jr., Ph. B. Yale '09.

Donald Gardner Russell, Ph. B., Yale '09.

Paul Galpin Shipley.

FROM THE SHEFFIELD SCIENTIFIC SCHOOL

George Vanderbilt Caesar

A. M. Chickering

Frank Baldwin Doolittle

Sidney Edward Hadley

Richard P. Hart

Earle Heaton Hemingway

Kenneth Fletcher Lees

Eugene Edward Oviatt

Givens Archer Parr

Arthur Phillips

Chemistry

Zoology and Botany

Civil Engineering

Chemistry

Electrical Engineering

Chemistry

Mechanical Engineering

Civil Engineering

Mining Engineering

Chemistry

| | |
|------------------------|------------------------|
| Austin Bryant Reeve | Mechanical Engineering |
| Walter Charles Schmidt | Mining Engineering |
| Philip William Swain | Mechanical Engineering |
| Rudolph Harold Willard | Electrical Engineering |

FROM YALE COLLEGE

| | |
|--------------------------|-------------------------|
| Clarence Emir Allen, Jr. | Geology |
| Harry Berman | Physiology and Biology |
| Lorenzo Bull | Physics and Chemistry |
| Lawrence Curtiss | Biology and Chemistry |
| Ralph H. Gabriel | Geology |
| Edward S. Hammond | Mathematics and Physics |
| Edmund S. Hawley | Chemistry and Biology |
| William Watson House | Physics and Chemistry |
| Bernard Emerson Leete | Biology |
| John Wentworth Luce | Mathematics and Physics |
| Lovell Waldo Mason | Chemistry |
| Murray Rushmore | Geology |
| Philip Gray Russell | Geology |
| John R. Tuttle | Mathematics and Physics |

The following meetings were held during the year by the Chapter only:

- Election of New Members—Feb. 5, 1913
- Initiation and Banquet—Feb. 22, 1913
- Business Meeting—June 4, 1913

Public meetings and lectures given under the auspices of the Yale Chapter:

- Nov. 26, 1912—Prof. Hugo de Vries, of the University of Amsterdam. Some Experiments in Biology.
- Jan. 17, 1913—Prof. A. L. Dean. The Inventor and the Patent Law.
- Mar. 14, 1913—Dr. Joseph Marshall Flint. A Medical Journey to the Orient.
- Apr. 2, 1913—Prof. Charles Felton Scott. Engineering in Modern Life.
- Apr. 16, 1913—Professor DuBois. The Story of a Lighthouse.
- May 7, 1913—Professor McClelland. Some Methods of Prospecting.

The life of the Chapter is vigorous and its influence in the University is steadily increasing.

JOSEPH W. ROE,
Corresponding Secretary.

OPEN FORUM

QUARTER CENTURY RECORD AND HISTORY OF THE SIGMA XI

The stout volume of over five hundred pages containing the Quarter Century Record and History of the Sigma Xi Society is a source of congratulation to every loyal member of the organization. It is to be presumed that every one who values his membership in Sigma Xi either owns or has attentively examined the work, and a detailed review of its contents would be superfluous here. Its publication is especially gratifying to the writer of this notice, because it is the fulfillment of a hope that he had long entertained and of which he felt entire confidence in the hands of the able and zealous secretary. And he would impress upon the members of Sigma Xi how much they are indebted to his patient and self-sacrificing labors in its production. He feels safe in saying that to no one else does the Society owe more for its growth and usefulness today than to Professor Ward, who has served faithfully for the past nine years as its corresponding secretary, an officer of whom much is expected and to whom too little credit given.

If Sigma Xi is to live and be useful in American science, and we are sure that it will, a faithful history of its inception, growth, and present condition was indispensable at this time, the end of its first quarter century of existence. And such a history Professor Ward, aided by the various chapter secretaries, has given us. Its compilation has been a herculean task, and it is to the credit of all those concerned in its production that it has so few errors. Twenty-five years hence the work will be of incalculable value for its history of the future workers of science in America.

For the benefit of those of our readers who have not seen the work, and we trust that they are few in number, it may be said that the book contains, well printed, a full history of the origin, organization, and development of the Society of the Sigma Xi, a complete list of all its officers, past and present, together with a history of the organization of each of its chapters and a list of all their officers and members, active and alumni, with their addresses and present occupations. And the indices, both geographic and alphabetic, are complete.

The writer has, regretfully, to add that there are still outstand-

ing obligations for the book on the part of some members, the burden of which and the incidental responsibilities connected therewith are thrown on the shoulders of the secretary. Surely he has done enough in the work he has accomplished for the Society to be relieved at once of all further responsibilities connected with its publication.

S. W. WILLISTON.

NEWS ITEMS

Chapters and delegates to the Atlanta Convention should note that the plan proposed by the Minnesota Chapter (see *QUARTERLY* No. 1, p. 12, and p. 23) has not been adopted. It is now before the Society. Regarding expenses President Cattell writes:

"The American Association will this year make efforts to have delegates sent to the meeting from the different universities, the expenses being paid in whole or in part by the institutions if this is possible. I trust that you will be able to see that your chapter is adequately represented and make inquiry as to whether the institution will defray part of the expenses of the delegates."

All of the Chapter Reports are furnished by chapter secretaries and each should be printed over the signature of the responsible officer. In some way these names were in the printing lost from the reports of the Missouri (p. 53), Colorado (p. 73), and Cornell (p. 81) chapters published in the *QUARTERLY*. Full credit for the reports in question should be given to the respective secretaries.

The Year Book of the Alpha Chapter of the Society of the Sigma Xi for 1913-1914, compiled by the Recording Secretary, is a very attractive pamphlet of 20 pages. It gives the record of the past year, the proposed program for the current year, the officers and committees of the chapter and the list with addresses of its active members in good standing on November 3. It furnishes clear evidence of an efficient secretary and an active influential chapter.

CHAPTER OFFICERS
LIST FURNISHED BY THE CORRESPONDING SECRETARIES OF THE CHAPTERS

| CHAPTER | PRESIDENT | VICE-PRESIDENT | REC. SECRETARY | COR. SECRETARY | TREASURER |
|------------------------|---------------------------|-------------------------|---------------------------|-------------------------|---------------------------|
| Cornell | Ernest Blaker | A. W. Gilbert | F. K. Richtmyer | James McMahon | W. A. Riley |
| Rensselaer | E. R. Cary | R. H. Carrington | C. H. Andros | E. F. Chillman | E. F. Chillman |
| Union | Olin H. Landreth | Howard Opyke | Morland King | Warren C. Taylor | Chas. F. F. Garis |
| Kansas | P. F. Walker | H. P. Cady | U. G. Mitchell | W. J. Baumgartner | W. H. Twenhofel |
| Yale | Roswell P. Angier | Wm. A. Drushel | Harold S. Palmer | Joseph W. Roe | H. M. Dadourian |
| Minnesota | Edw. M. Freeman | Alois F. Kovarik | Francis G. Frary | Fredk. K. Butters | Wm. H. Hunter |
| Nebraska | H. H. Waite | Geo. Borrowman | V. L. Hollister | A. L. Candy | L. B. Tuckerman, Jr |
| Ohio | Chas. S. Prosser | John F. Lyman | W. M. Barrows | W. M. Barrows | C. E. Boord |
| Pennsylvania | Allen J. Smith | J. M. Macfarlane | Maurice J. Babb | J. W. Harshberger | J. P. Moore |
| Brown | Ansel Brooks | Charles W. Brown | R. G. D. Richardson | James A. Hall | Philip H. Mitchell |
| Iowa | Geo. W. Stewart | Henry J. Prentiss | Fay C. Brown | G. L. Houser | Robert B. Wylie |
| Stanford | Robert E. Swain | W. K. Fisher | Leroy Abrams | LeRoy Abrams | LeRoy Abrams |
| California | Frederick Slate | A. S. Finkle | Elmer E. Hall | Edmond O'Neill | J. N. LeConte |
| Columbia | Charles P. Berkeley | Arthur L. Walker | James K. Finch | J. H. Morecroft | James K. Finch |
| Chicago | John M. Coulter | A. P. Matthews | H. I. Schlesinger | J. Stieglitz | H. I. Schlesinger |
| Michigan | Wm. C. Hoad | Ermine C. Case | Walter F. Hunt | Walter F. Hunt | Geo. R. LaRue |
| Illinois | G. A. Miller | H. W. Mumford | Edward Bartow | C. G. Derick | T. E. Savage |
| Case | F. R. VanHorn | C. H. Fulton | W. J. Sweetser | W. J. Sweetser | C. D. Hodgman |
| Indiana | Burton D. Myers | R. D. Carmichael | Mrs. F. N. Andrews | Cora B. Hennes | John B. Dutcher |
| Missouri | W. C. Curtis | H. M. Reese | E. B. Branson | D. H. Dolley | Chas. W. Greene |
| Colorado | A. R. Peebles | R. D. George | P. G. Worcester | P. G. Worcester | Ira M. DeLong |
| Northwestern | John H. Long | Olin H. Basquin | Robt. E. Wilson | G. H. Cady | Robt. E. Tatnall |
| Syracuse | W. M. Smallwood | E. H. Archibald | H. A. Clark | H. A. Clark | F. F. Decker |
| Wisconsin | L. R. Ingersoll | Eliot Blackwelder | Walter J. Meek | Eric R. Miller | Oliver P. Watts |
| Washington State | Henry Landes | Henry K. Benson | Robert E. Rose | F. M. Morrison | Geo. S. Wilson |
| Worcester | Joseph O. Phelon | Frederic Bonnet | John H. Nelson | Howard C. Ives | Albert W. Hull |
| Purdue | Stanley Coulter | W. E. Stone | C. G. Woodbury | R. L. Sackett | R. G. Dukes |
| Washington Univ. | Walter E. McCourt | R. J. Terry | J. C. Rayworth | Ernest L. Ohle | J. F. Abbott |

Including Chapter Reports received up to December 1, 1913

COUNCIL OF THE SOCIETY OF THE SIGMA XI

PRESENT OFFICERS

| | |
|---|--|
| J. McKEEN CATTELL, President | Columbia University, New York City |
| JOHN H. LONG, Vice-President | Northwestern University, Evanston, Illinois |
| DAYTON C. MILLER, Recording Secretary | Case School of Applied Science, Cleve- land, Ohio |
| HENRY B. WARD, Corresponding Secretary | University of Illinois, Urbana, Illinois |
| J. F. KEMP, Treasurer | Columbia University, New York City |

PAST PRESIDENTS

| | |
|-------------------------------|--|
| HENRY S. WILLIAMS (1895-1901) | Cornell University, Ithaca, New York |
| S. W. WILLISTON (1901-1904) | Chicago University, Chicago, Illinois |
| E. L. NICHOLS (1904-1909) | Cornell University, Ithaca, New York |
| F. O. MARVIN (1909-1910) | University of Kansas, Lawrence, Kans. |
| H. T. EDDY (1910-1912) | University of Minnesota, Minneapolis, Minn. |

CHAPTER REPRESENTATIVES

TERM ENDING JANUARY 2, 1913*

| | |
|---------------------------|---------------------|
| Rensselaer—C. W. CROCKETT | Stanford—H. J. RYAN |
|---------------------------|---------------------|

TERM ENDING JANUARY, 1914

| | |
|--------------------------|--------------------------|
| Case—C. S. HOWE | Nebraska—E. W. DAVIS |
| Chicago—JULIUS STIEGLITZ | Northwestern—WM. A. LOCY |
| Iowa—THOS. H. MCBRIDE | Ohio—EDWARD ORTON, JR. |
| Kansas—E. H. S. BAILEY | Worcester—A. W. EWELL |
| Minnesota—H. T. EDDY | |

TERM ENDING JANUARY, 1915

| | |
|--------------------------|-------------------------------|
| Columbia—C. C. CURTIS | Syracuse—W. H. METZLER |
| Cornell—D. S. KIMBALL | Washington State—HENRY LANDES |
| Indiana—C. H. EIGENMANN | Union—OLIN H. LANDRETH |
| Missouri—O. M. STEWART | Yale—JOHN C. TRACY |
| Pennsylvania—E. F. SMITH | |

TERM ENDING JANUARY, 1916

| | |
|-------------------------------|------------------------------------|
| Brown—ALBERT DE FOREST PALMER | Michigan—KARL E. GUTHE |
| California—J. C. MERRIAM | Purdue—C. H. BENJAMIN |
| Colorado—FRANCIS RAMALEY | Wisconsin—JAMES B. OVERTON |
| Illinois—S. A. FORBES | Washington University—J. F. ABBOTT |
| Chairman of the Council..... | JULIUS STIEGLITZ (Chicago) |

According to the Constitution the terms of all national officers end with the annual convention which comes at the close of the period for which they were elected. Nevertheless officers all serve until their successors are elected.

*The election of their successors has not been reported to date.

OFFICIAL ANNOUNCEMENTS

A few extra copies are still to be had of the

QUARTER CENTURY RECORD AND HISTORY

A copy will be sent prepaid on receipt of \$2.50. The Secretary is not authorized to vary these instructions given by the General Convention.

PRINTED BLANKS

The General Convention has instructed the Secretary to keep for chapters a supply of printed blanks as enumerated below. According to instructions these are to be forwarded to chapters under the following stipulations:

Membership Certificates, stamped with the great seal of the Society. In packages of fifty prepaid, on advance payment of \$2.50 for each package.

Index Cards, on the condition that a duplicate set be sent for the general index of the Society maintained in the secretary's office. Gratis on demand.

Report Blanks, for submitting annual reports giving chapter officers, elections, and other statistical data. Gratis on demand.

SIGMA XI PUBLICATIONS

It has been proposed to bind up a number of sets of important early documents regarding Sigma Xi and to place a set in each of a selected series of the leading libraries of this country.

The undersigned will be glad to receive copies of such publications relating to the Society in general or to any one of its chapters which those interested may be able and willing to furnish for this purpose.

HENRY B. WARD.

